Fancy Fence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Everybody knows that Balázs has the fanciest fence in the whole town. It's built up from N fancy sections. The sections are rectangles standing closely next to each other on the ground. The ith section has integer height h_i and integer width w_i.
We are looking for fancy rectangles on this fancy fence.
A rectangle is fancy if:

- its sides are either horizontal or vertical and have integer lengths
- the distance between the rectangle and the ground is integer
- the distance between the rectangle and the left side of the first section is integer
- it's lying completely on sections

What is the number of fancy rectangles?
This number can be very big, so we are interested in it modulo $10^9 + 7$.

Input

The first line contains N ($1 \leq N \leq 10^5$) – the number of sections.
The second line contains N space-separated integers, the ith number is h_i ($1 \leq h_i \leq 10^9$).
The third line contains N space-separated integers, the ith number is w_i ($1 \leq w_i \leq 10^9$).

Output

You should print a single integer, the number of fancy rectangles modulo $10^9 + 7$. So the output range is $0, 1, 2, \ldots, 10^9 + 6$.

Scoring

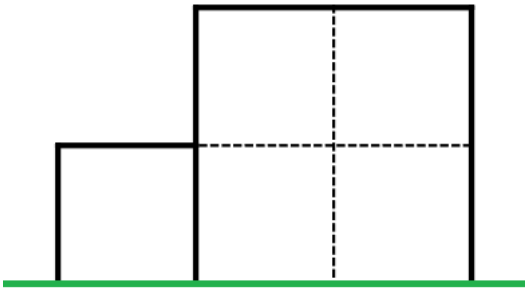
Subtask	Points	Constraints
1	0	sample
2	12	$N \leq 50$ and $h_i \leq 50$ and $w_i = 1$ for all i
3	13	$h_i = 1$ or $h_i = 2$ for all i
4	15	all h_i are equal
5	15	$h_i \leq h_{i+1}$ for all $i \leq N - 1$
6	18	$N \leq 1000$
7	27	no additional constraints

Example

standard input	standard output
2 1 2 1 2	12

Note

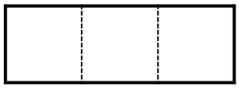
The fence looks like this:



There are 5 fancy rectangles of shape:

There are 3 fancy rectangles of shape:

There is 1 fancy rectangle of shape:



There are 2 fancy rectangles of shape:

There is 1 fancy rectangle of shape: